WILMINGTON GENERAL HOSPITAL NUMBER

DELAWARE STATE MEDICAL JOURNAL

Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 24
NUMBER 2

FEBRUARY, 1952

Per Year, $4.00
Per Copy 50c

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Entered as second-class matter June 28, 1929, at the Post Office at Wilmington, Delaware, under the Act of March 3, 1879. Editorial Office, 822 North American Building, Wilmington 7, Delaware. Business Office, Farnhurst, Delaware. Issued monthly. Copyright, 1952, by the Medical Society of Delaware.

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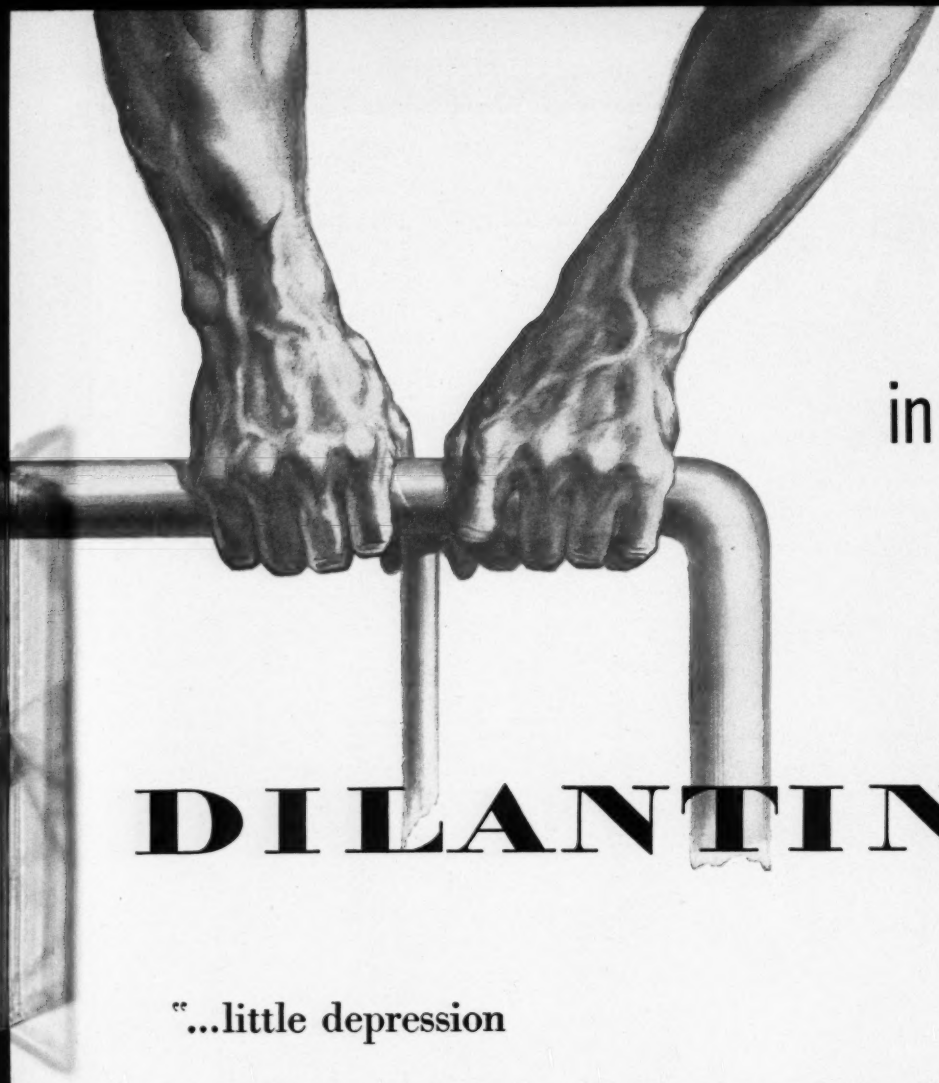

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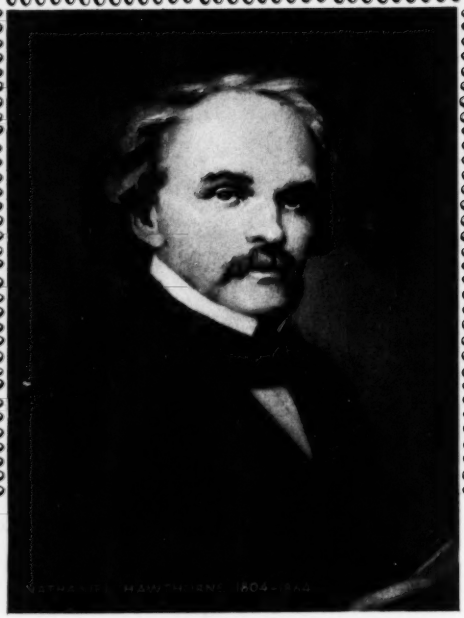

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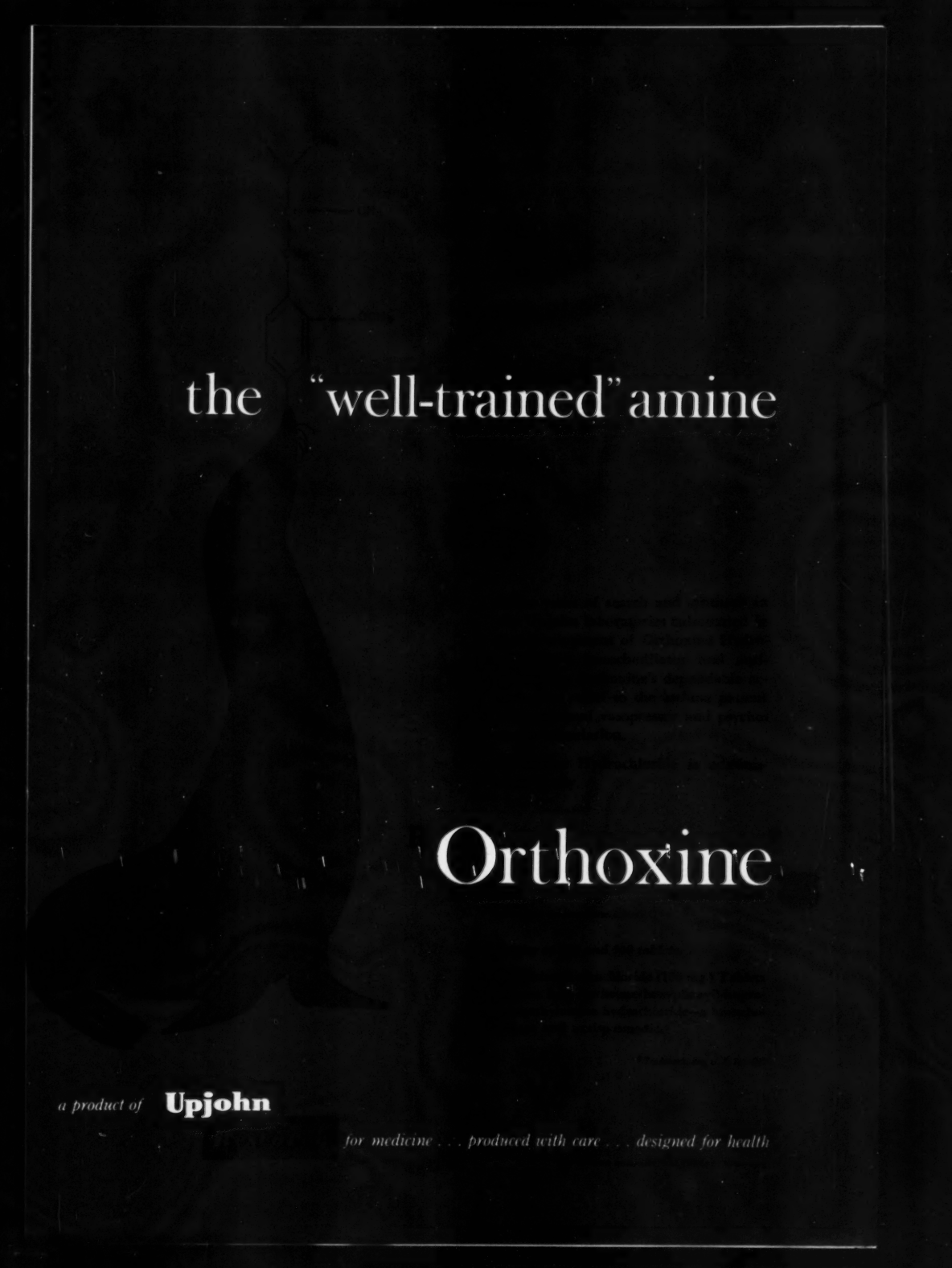
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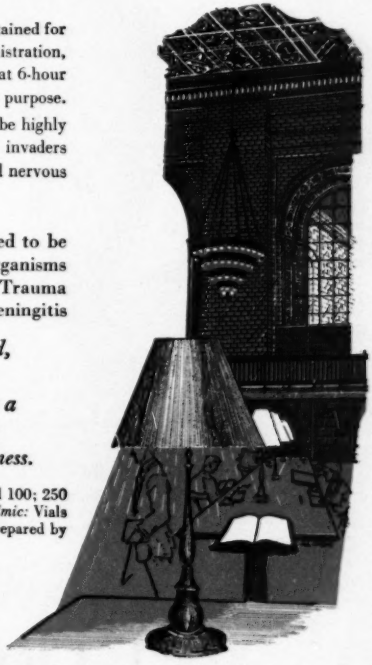

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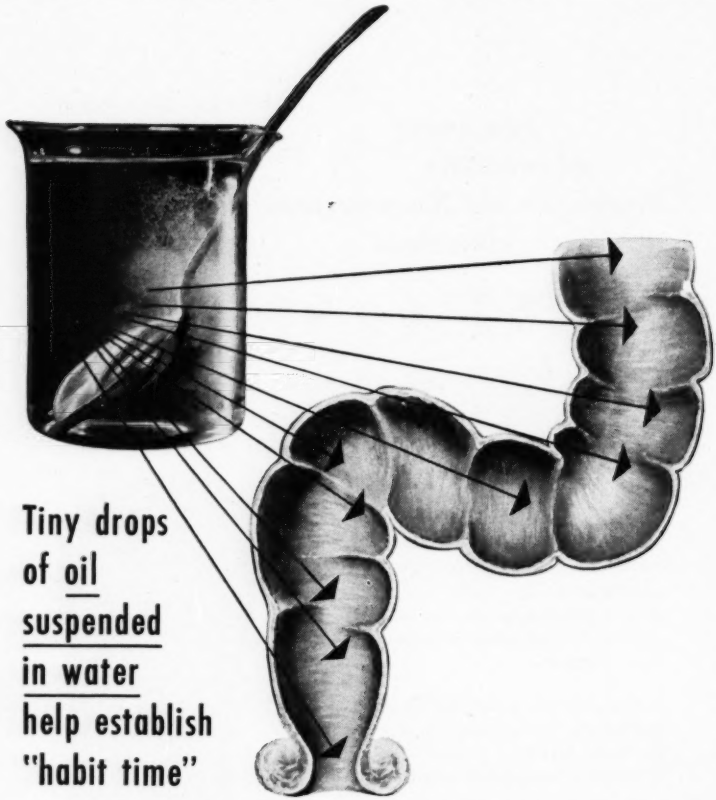

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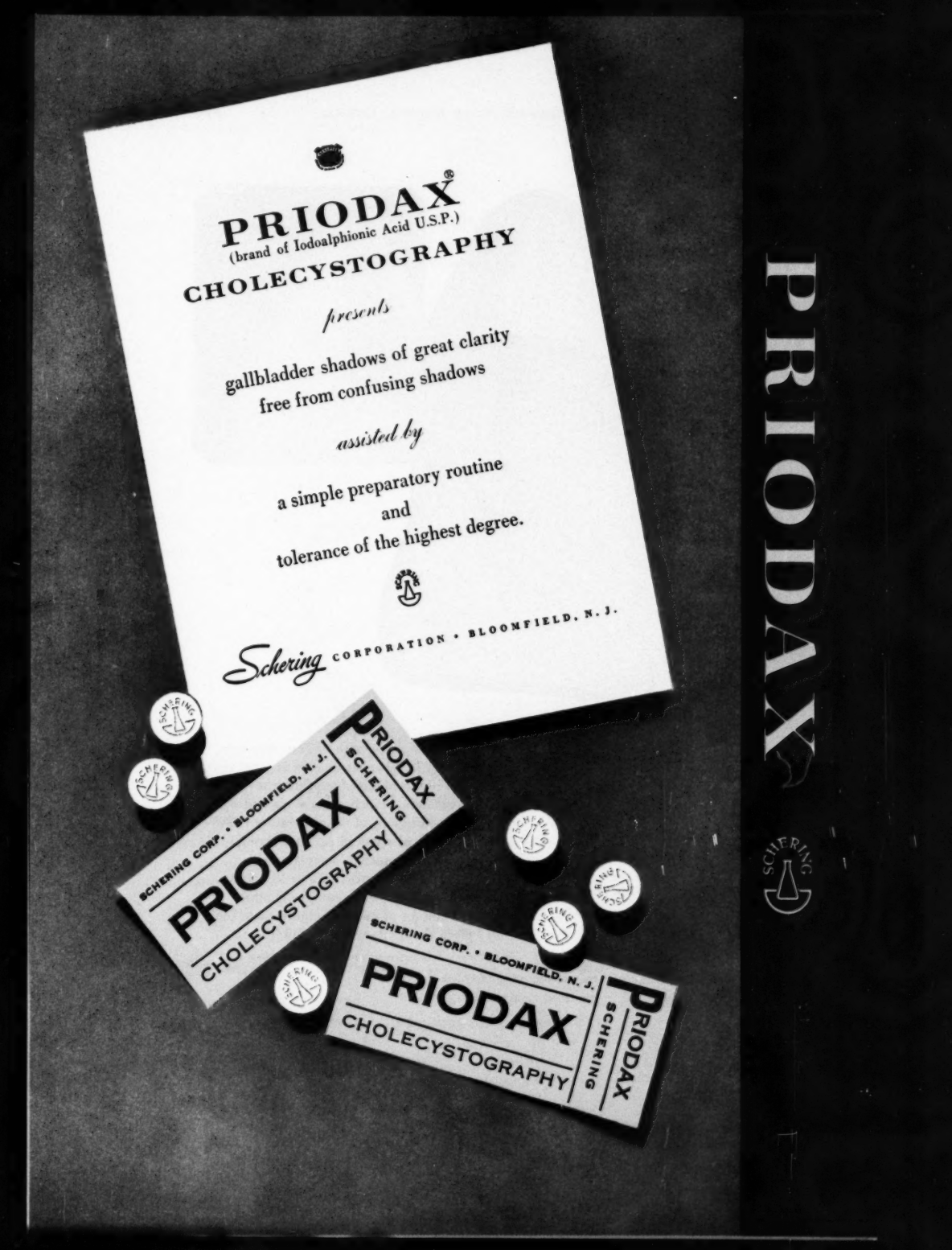
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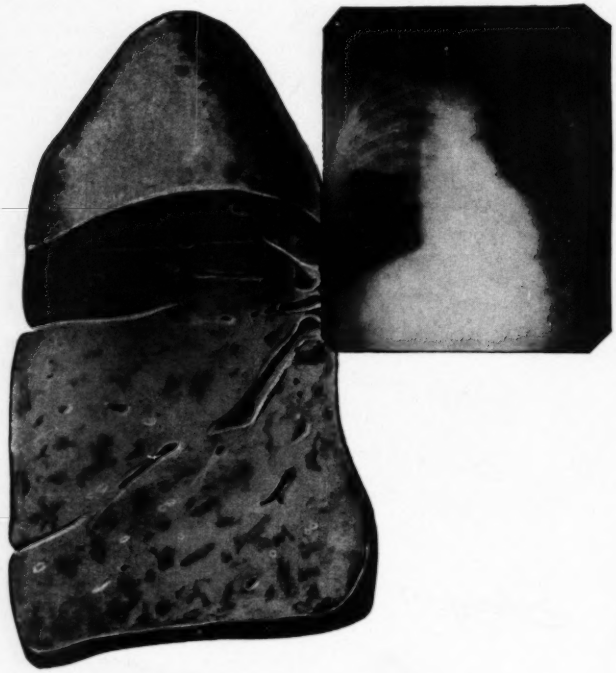

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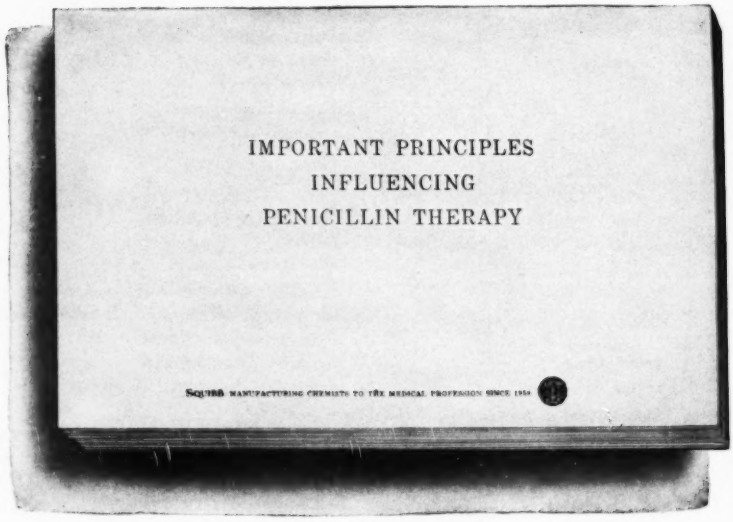

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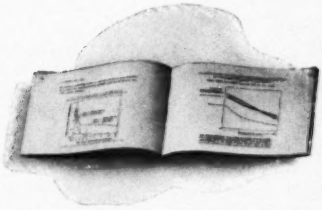

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**J.A.M.A. 146:35, 1951.*

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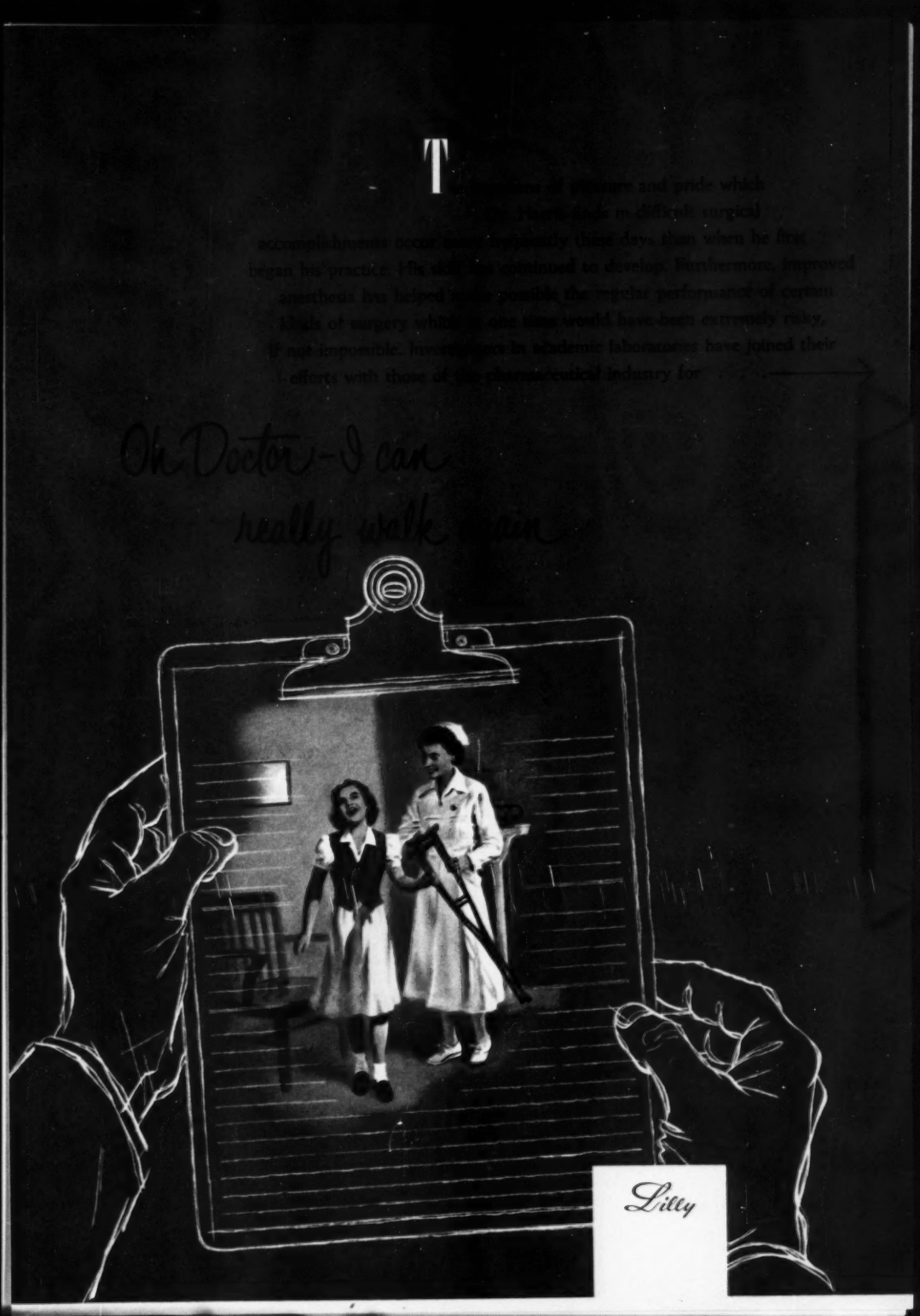
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TUBERCULOSIS IN SMALL COMMUNITIES*

RUFUS S. REEVES, M. D.**
Philadelphia, Pa.

As this topic is presented you should bear in mind the fact that historically tuberculosis has been a predominantly urban disease in the United States. It has taken its greatest tolls in the blighted areas of large cities where there is poor housing, poor nutrition, poverty, and where unfortunately in many places one finds a strong desire to expect government support — whether it be federal, state or local. As these improvements in housing and nutrition, better economic status, and uncovering of cases by means of photofluoroscopic surveys and the follow-ups by public health nurses and sanatorial or clinic care have become a reality in many cases, we have seen one of the most remarkable chapters in medical history in the reduction in mortality.

During recent years tuberculosis has been displaced as the leading cause of death in this country and now it stands in seventh place among the lists of causes of death. For example, in 1900 the death rate from tuberculosis was over 200 per 100,000 while in 1949 it was about 30 per 100,000. This is all the more remarkable when we realize that we still have no prophylactic agent such as a vaccine and no specific therapeutic agent.

Until such time as a specific preventive or curative agent is discovered the control of tuberculosis is a problem which is the concern not only of members of the medical and nursing profession but of every individual in the community. The concerted efforts of people in all walks of life should be directed to the purpose of stamping out this wide-spread communicable disease.

Tuberculosis mortality rates for the entire country are available for 1948. The highest death rate is in Arizona—82.4 per 100,000—due, of course, to the migration of tuberculosis patients to that state. Lowest rate is Iowa—9.5 per 100,000. The death rate for the state of Delaware was 39.7, which places it among the nine states having the highest rate.

Several aspects of tuberculosis incidence seem to have a direct bearing on the mortality rate. In addition to low standards of living and poor control programs, other conditions contribute to higher mortality rates. Of special importance is racial component of population. Death rates among non-whites are generally much higher than among whites. In 1948 the national death rate was 30 per 100,000 but among Negroes it was 76.3 and among Indians 143.2.

The hospitalization of tuberculosis patients always has a direct bearing on the incidence of the disease. Naturally if patients are isolated in hospitals there is less chance for them to transmit the disease to others. In this connection it has been noted that in those areas where most tuberculosis deaths occur in hospitals, there is less evidence of spread of the disease in the community.

Tuberculosis remains a major public health problem over the entire country. It is changing in its age distribution. It is a leading cause of death among those in their productive twenties, although the death rate from tuberculosis is now highest among males past sixty years.

Whether in urban or rural areas the plan for the control of tuberculosis must, of necessity, because of the character of the disease, be centered in the health authorities. It is the duty of health officials to keep a record of all individuals suffering from communicable tuberculosis, to provide facilities for the care of indigent tuberculosis patients, to conduct case finding programs, and to disseminate information which would increase the knowledge of tuberculosis among the laity. In addition,

*Read before the Medical Society of Delaware, Dover, October 4, 1950.
**Director of Public Health, City of Philadelphia

any well-organized program would provide for financial aid to the patient and his dependents and also for rehabilitation.

The task of controlling tuberculosis in rural America is made difficult by all the factors that impede the provision of general public health and medical services. As mentioned earlier but bearing repetition, we know that education, housing, nutrition and low income are most vital factors. The rural educational levels, which include education on personal hygiene and living habits, are much below the urban level.

The comparative level of nutrition — urban and rural — is rather difficult to evaluate. There is some evidence that in the economic depression this level was slightly better in the rural areas but less than one would expect, possibly because of the sale of food to secure more money. In the more prosperous period urban eating habits improve enormously and their use of the balanced diet may be — probably is — the result of health education in that very important subject.

It is thought safe to say that except for the increased opportunity for the person-to-person spread of tubercle bacilli in the cities, the conditions of rural life provide the basis for a higher mortality than do those of urban life. The 1940 census showed greater overcrowding in farm houses, the distances to be covered by the public health nurses are great in many areas, as is the distance to tuberculosis clinics and hospitals where pneumothorax is given, laryngeal examinations made and x-rays taken. Furthermore, the rural areas lose the benefit in many sections of the facilities of the voluntary and public health agencies.

In reducing rural tuberculosis the same measures as used in cities must be used—they are case finding, through the private physicians and mass surveys, public health tuberculosis clinics, hospitalization in sanatoria.

The striking results of mass x-ray surveys are being enjoyed mainly by the residents of large and medium-sized cities. In the latter the federal fund grants-in-aid are made on a matching financial basis with local funds. Even in rural areas where chest x-ray units from the health department arrive, the population surveyed will be mainly the residents of a county seat or urban center in the county. It is very difficult to reach scattered rural people with the necessary and recognized measures for examination and treatment. What is needed is the establishment of the local community health center by the state department of health.

In the urban areas the public health department has the benefit of assistance from the voluntary health agencies. The tuberculosis and health associations, which are probably the nation's best established voluntary health agencies, are strongest in the larger cities. There is a fine field for the establishment of these agencies in more of our rural areas.

When one finds a case of tuberculosis, whether in the rural or urban area, one has the problem of shortage of sanatorium beds. The existing shortage is due partly to lack of personnel — especially nurses. That is influenced by salary and lack of education. It is known that the incidence of tuberculosis among nurses is lower in the tuberculosis hospitals than in general hospitals. The public health nurses working with the medical profession are doing an outstanding job, yet more of them are needed in the field of tuberculosis work.

It must be further emphasized that the practicing physician is the key to a good system of reporting — his complete cooperation with his health officer is essential for success in stamping out tuberculosis. Similarly, we must stress case contact follow-up work by our nurses.

A well-organized program in a city has the following constituents:

1. A central case registry where the names of all tuberculosis patients are registered. This provides a means of information interchange with health departments in other localities for the patient who moves from place to place. It also provides a means of making certain that patients with active disease receive routine medical check-ups and follow-up nursing care.

2. Case finding programs, particularly by mass x-ray surveys, in which x-ray examinations are given to apparently healthy individuals. These examinations are made on 70 mm films and all patients who show evidence of abnormal shadows in the lungs are reexamined on large films. To make mandatory semi-annual x-ray and Wassermann exami-

nations of food handlers, industrial and domestic help — including hospital employees — is good public health.

3. Out-patient clinics are an essential part of any tuberculosis control program. There individuals may go for routine chest examinations and private physicians may refer their patients for study. A staff of public health nurses attached to these clinics make routine visits to all patients who are reported to the department of public health as having tuberculosis. These visits are for the purpose of making certain that the public health laws are being observed by the practice of isolation technique and also to insure or to impress upon the contacts the importance of having routine chest examinations. The clinics act as listing stations for patients in need of hospitalization or sanatorium care. They also serve as pneumothorax treatment centers.

4. Protection of the public by means of enforcing isolation of sputum-positive patients who are considered a menace to the public health because of their refusal to properly dispose of their sputum or use precautionary measures. These patients may be quarantined under the law and in Philadelphia between sixty and seventy patients in this category are confined to the Philadelphia Hospital for Contagious Diseases each year.

5. Public health information — This is exceedingly important in the control of tuberculosis. It can be done by trained public health workers, nurses, or physicians. It has for its purpose the dissemination of scientific information among the laity and stresses the correction of misconceptions and superstitions which concern tuberculosis and which have been handed down for generations.

6. Research — an important part of any tuberculosis control program — may be done by the health department either alone or in cooperation with other groups. In Philadelphia the health department has three tuberculosis research programs at the present time, as follows:

(1) The central cooperative clinic at Temple University which is a study of the course of patients with minimal tuberculosis, especially a research of those treated at home and those treated in institutions.

(2) A study in cooperation with the Henry Phipps Institute, in addition, as to the incidence and character of tuberculosis in members of the Negro race.

(3) A B.C.G. project in cooperation with the state department of health and the Henry Phipps Institute which is vaccinating newborns at the Philadelphia General Hospital with B.C.G. Thus far over 1,000 children have been vaccinated.

In attacking successfully, and that means effectively, the rural tuberculosis control, the following program is essential:

1. Improve rural housing.

2. Elevate the standards of education in the fields of general living, personal hygiene, and nutrition.

3. Make available to the community the services of experts and the general practitioner at local health centers and on educational programs. Facilities here for treatment must be provided.

4. Make available public health nursing personnel for follow-up and family education.

5. Have mass chest x-ray available.

6. Provide general hospital and sanatoria beds.

7. Last but not least, the cooperation with and active assistance from your local health and tuberculosis association in the form of opening rural area facilities.

It is important to state that since rehabilitation plays such an important part in tuberculosis control this part of the program must be developed and broadened. A recent study of 305 tuberculosis patients rehabilitated during a ten-year period draws conclusions which give tremendous possibilities in this field. Demonstration of official agencies of the intrinsic value of this phase of tuberculosis control is the next necessary step.

The bureau of rehabilitation is the principal source of vocational rehabilitation in the community. It is impossible to determine the extent to which the rehabilitation needs of tuberculosis patients are being met because there are no standards on which to base any estimate of the number of tuberculous patients needing vocational rehabilitation.

As stated previously, the family physician, wherever he may be, remains the key to tuberculosis control. The rural physician has an opportunity that is unsurpassed in the tuber-

culosis control program. His knowledge and insight into family history and its socio-economic conditions is an invaluable asset. The patient with a family history of tuberculosis is a number one suspect. The examination of all contacts is greatly simplified in rural practice. By increasing his level of suspicion for infection, he can bring about early diagnosis and treatment. His counselling to patients to accept newer diagnostic and treatment methods and to lay aside superstitions and unfounded beliefs can produce worthwhile results. His reports to the health department and the use of the public health nurse are the bases of success here. Finally, in calling upon and assisting lay leaders, the job of public education and case-finding by mass x-ray becomes greatly simplified.

In conclusion let me say that I have given you a broad public health presentation of rural tuberculosis, with a suggested program. May each of you be a brighter torch carrier for the eradication of this dread disease.

DISCUSSION

DR. F. I. HUDSON (Dover): Dr. Reeves has brought us a good deal of valuable information today. If we follow some of the points that he has brought out here, I think we will be able to carry on a much better program here in Delaware.

I didn't intend to give Dr. Reeves the idea that we had a perfect program here in Delaware because we all know that there is plenty of room for improvement.

As far as our hospital beds are concerned, we have not had any large waiting list in the past year, but we have not been taking care of our childhood tuberculosis adequately. We have had a building at Brandywine Sanatorium which has not been in use, which could be used if funds were available. So we still need a lot of help as far as tuberculosis control is concerned here in the State, and certainly the suggestions you made, Dr. Reeves, will be helpful.

As far as cooperation of the physicians in the State is concerned, we have certainly had good cooperation over the years. The thing was all set up when I took over the job as State Health Officer, and I didn't have to do too much on that. I must add that there are very few deaths reported that have not been reported as cases before. That doesn't pose any big problem with us at all. I think that is a good sign because it does show that the physicians in the State recognize their responsibility in the care of these tuberculosis cases and in the prevention of the spread of tuberculosis.

Actually I might point out that Delaware is pretty low on the list when it comes to having a high mortality from tuberculosis. I have here figures from some years back. Of course, during the war the mortality rates ordinarily go up. In 1918 in this State we had a rate of 205 deaths per one hundred thousand population, which is a tremendous rate. That has gone down steadily. During the last war it went up just a little bit. It went as low as 48 in 1936 and up to 56 in 1941. In 1942 it was down a little bit, and in 1949 our rate still remained a little over 37 per 100,000 population, which puts us about eighth from the bottom — not from the top — when we compare ourselves with the other states in the United States.

Of course we have a good percentage of colored population. Our distribution of these deaths is mainly in the City of Wilmington, which has a pretty large colored population, which is a factor in that, and also in Sussex County. New Castle County proper and Kent County had much better rates over a period of time.

So we must apply our efforts in getting those groups who are highly infected under control.

I might state some of the improvements that have been made and the cooperation we got from the Anti-Tuberculosis Society. Just as an example, we established a clinical laboratory and bacteriological laboratory to do the work for both the white and colored patients in the sanatoria. They can do any type of work on t.b., including culture and animal inoculation. Any and all tests are given to patients in the sanatoria at this time. Funds for the equipment and supplies were supplied by the Delaware Anti-Tuberculosis Society, and they have been very helpful to us in many other instances.

One of our gross delinquencies is the care of surgical cases, which was mentioned here yesterday, and I won't go into that any fur-

ther. But we do need more space to handle our surgical cases. The number of surgical cases we have is limited in this small State, and we feel from the state level that it doesn't pay us to operate a surgical unit at our sanatoria. So we send our cases to a general hospital that has that particular service available, and the operations are done there. We hope to continue that, but we need a few more beds at that hospital because we need to handle white males, females, and colored males and females, and we are not able to do that at the present time.

We have, on occasion, had to postpone operations until operation wasn't feasible at all, which is a bad situation. We hope that will be corrected within the next year.

We are asking for considerable funds from the next General Assembly in order to expand and improve our work in t.b., especially to improve the facilities at the sanatorium. As you know, we have an old building there, constructed in 1912, and it is getting quite dreary. It needs a good deal of repair, to say the least. A new building would be much better, but whether we can hope for such I do not know. The State Board of Health has just requested the United States Public Health Service, through their New York office, to assist us in doing a survey in order that we may have a better idea, an unbiased opinion as to what we should do further to improve our tuberculosis situation. I have also asked your friend, Dr. Hillbo if he wouldn't send Dr. Plunkett down. I expect you are familiar with Dr. Plunkett. We would like him to help us out in studying our proposed alterations and such in the sanatoria. They both promised to help us out and have someone down here in a few weeks.

We will certainly report on what the recommendations of these people are.

I want to thank you personally, Dr. Reeves, for coming down here. It is going to be a big help to us. I know these fellows and I personally understand much better what is going on in Philadelphia, and we all have the same problems.

DR. V. D. WASHBURN (Wilmington): I think it can be agreed that it is considered the mission of a speaker always to speak not only instructively but interestingly, and if perchance he does those two things and also is able to inspire in the members of the audience a desire to profit by the experiences and the observations of the speaker, then surely he has discharged in full his obligation.

I say these things because it gives me the opportunity of expressing the opinion that you have done all of those things, and certainly, so far as I am concerned, it is so.

I think a most interesting point, not brought out here but which I believe is germane to the subject, was brought to our attention within the last few weeks by a speaker who came before our joint meeting of the Delaware Academy of Medicine of the New Castle County Medical Society. He came here from Massachusetts, and amazing to relate, referred to the fact that in the State of Massachusetts there was a very definite difficulty, and an increasing difficulty, to be found in the fact that in the training schools and in the general hospitals of Massachusetts, there was a trend and almost a determination to see to it that there should be no beds available in those general hospitals for tuberculosis patients, which to me meant two things. First, that that reflects definitely a failure on the part of the medical profession. As I look back over the by-laws of two or three hospitals in Wilmington, with which I am familiar, I can almost quote them and say that there shall be no patients admitted to this hospital who have pulmonary tuberculosis. Those rules and by-laws were always put together and usually came either from the American Medical Association, or the American College of Surgeons, and we legislated, and we are contributing to a fault in our overall program.

When we make it difficult for patients to be admitted, we present a temptation to the medical practitioner who may know that his patient has tuberculosis but considers that he is so ill that he is justified in admitting him for observation for some other disease. Secondly, by this policy, which is coming to light in Massachusetts, we are limiting very definitely the opportunity for the training in the schools of nursing. I speak of that, although not immediately germane to what you have talked about, but because it is important and worthy of the attention of all the members covering this entire State.

I think that it is most interesting, as we grow older, even though I am not trained in the field of public health administration, but certainly it is clear to any man, no matter what his training, that changes in emphasis and realization of the necessity of approaching these problems differently is reflected in public health administration in the fact that today, here and there, we are beginning a new policy. We are curiously enough developing housing programs under the supervision of the departments of health in various cities, and obviously it comes because with not poor housing but bad housing and terrible housing there arises not only a greater morbidity, a greater incidence of disease, but certainly a very much higher incidence of pulmonary tuberculosis. It is to be found not only in racial groups but among others. And because that has come to the surface, we are now confronted with the consciousness and the willingness to accept that responsibility, and indeed, health departments feel that they are justified in stepping into a brand new realm of sociological work and social work.

We in Wilmington have been bitten by that bug, and we don't know whether we are going to embark on such a program. We have decided to do so. It is now in the hands of the city council as to whether funds will be provided for us to do just that thing.

Now there is another departure or change in the thinking of public health administration. Actually, as you know, in Maryland they are developing widespread programs of care for the indigent, with the very close cooperation of the medical profession. You have repeatedly referred to the necessity of public health education, and you did emphasize the fact that that begins at our level, stemming from the public health officer asking that organized medicine assume the responsibility. We have done exactly that thing in Delaware this year, and carried on refresher courses, and we have I think profited tremendously at the level of bringing to the attention of the medical profession advances in the care of the tuberculous, and bringing them up to date as to what should be done. But we have gone beyond, and again, as you have pointed out, have begun to realize and to face and to attempt to do something about this business of carrying on an intelligent program of public health education. Without such a program the work of the Public Health Administrator just cannot succeed.

In an aside, or to digress for a moment in that connection, Dr. Hudson has referred to the tremendous improvement in tuberculosis control, or the tuberculosis record, in the State of Delaware since 1918. That too has a hazard. It has a danger. To be sure, from 208 deaths per 100,000 to 30 is worthy of satisfaction, but it is to be observed that if we are not on guard it leads to a degree of complacency, and from complacency we fail sometimes to recognize the danger. I think that we have suffered from just that sort of thing in Delaware. We have been going down and down and down in the morbidity and the death rate and so on, and suddenly we realize that we are not as good, we'll say, as Iowa. To be sure, we have the racial problem in Delaware that they do not possess in Iowa, but does that account for the fact that Iowa has 8 per 100,000 and we have 37? The danger is that we overlook the fact that perhaps we have done well but we could and should do better.

So, out of it comes the consciousness that we in medicine must look after our thinking with regard to our general hospitals; we must see to it that we do not become complacent; we must see to it that there is an organized program for providing post-graduate instruction for our membership, and that somehow or other we are clear in our thinking and realize that there is a difference between publicity and human relations, and there is a distinction between those two and good public health education, and it requires dispassionate planning and understanding and everlasting stick-at-itness to get the job done efficiently.

DR. REEVES: I know I am beyond the time but I want to make a couple of statements which may be a follow through on Dr. Washburn and Dr. Hudson.

Dr. Hudson, I don't know whether you know that Dr. Vaux found himself in the same position in Pennsylvania relative to having surgery done, as you are. Dr. Vaux took advantage of finding out which of the large hospitals in the city had capable chest men, and he found funds in the amount of $14.50 a day for the hospital, and the good medical man I believed received something like $50 for doing a chest operation.

That is the number one point that I wanted to mention. Number two, I am in such hearty agreement with Dr. Washburn relative to his remarks about tuberculosis not being admitted to general hospitals. That, I think, is a fearful mistake from many points of view, but particularly from the viewpoint of the patient. I have been discussing the matter with both Dr. Vaux and with Mr. Brown, who is the Secretary of Welfare of the Commonwealth of Pennsylvania, and I have suggested to both of them that they get their heads together and agree on legislation being introduced into the next legislature of the Commonwealth of Pennsylvania which will increase in some amount the state allocation of funds to general hospitals, with the distinct understanding that if they are not willing to participate in the tuberculosis program in a general hospital, that their state allocation will be cut.

I think that that is a very practical approach to some of our friends in the legislature, who really need a tremendous amount of public health education.

The state and county societies in both states can take a note out of the activities which are needed both on the state and local level, as far as the securing of funds is concerned. There are too many men in the legislatures these days, or in councils these days, that think they have to see all these things done for highways and bridges, and what not, and moneys which should be put at the disposal of health officers are, in my opinion, not allocated on the basis of need for public health, which they should have.

I want to again thank you very much for the privilege and honor of being asked to be on your program.

THE ABSENCE OF TRANSFUSION REACTION WITH ACTH AND CORTISONE*

A Case Report

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While the use of ACTH and cortisone in hemolytic anemia and erythroblastosis fetalis has been reported,[1] there is nothing in the literature regarding their action in patients who have received incompatible blood although its use in this condition has been urged.[2]

The following case report is important in that the patient inadvertently received 1400 cc. of incompatible blood while being treated with ACTH for acute granulocytic leukemia and had no symptoms or signs of transfusion reaction.

REPORT OF A CASE

A 29-year-old Negro was admitted to the hospital on March 21, 1951. Peripheral blood studies and bone marrow aspiration established the diagnosis of acute granulocytic leukemia. On March 23, therapy with ACTH was instituted. (Fig. 1) On March 29, cortisone was substituted for ACTH. This was discontinued on April 16, because it apparently was producing no beneficial effect.

Because of rapidly developing anemia, the patient was given a total of 1400 cc. of type A Rh Negative blood over a three-day period from March 28 to March 30. Except for a slight febrile reaction which occurred near the end of the first transfusion, there were no adverse effects; indeed, the patient was improved and showed a slight rise in red blood count and hemoglobin.

On April 5, further transfusions were indicated. The patient's blood was retyped, as is customary, and was found to be type B Rh Negative. Samples of the patient's blood obtained prior to March 28 were retyped and recrossmatched with the blood from the first three donors. These tests showed that the original typing and cross matching had been

*From the Medical Service, Veterans Administration Hospital, Wilmington.
Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

erroneous and that the patient had received 1400 cc. of incompatible blood.

During the following fifteen days, 3825 cc. of type B RH Negative blood were given. (Fig. 1)

Throughout the course of this patient's illness there was no evidence of hemolytic reaction or impairment of renal function. Fig. 1 shows pertinent laboratory and clinical findings. It can be seen that the blood urea nitrogen never exceeded 18 milligrams per cent, the urinary output was satisfactory, and the red blood count and hemoglobin showed a definite increase. In addition, the patient at no time was jaundiced; there was no hemoglobinemia, hemoglobinuria, or increased urinary urobilinogen excretion. Serial anti-A agglutinin titers and survival time of donor cells were not determined.

The patient's condition rapidly became worse and he expired on April 24, 1951 during an acute episode of pulmonary edema.

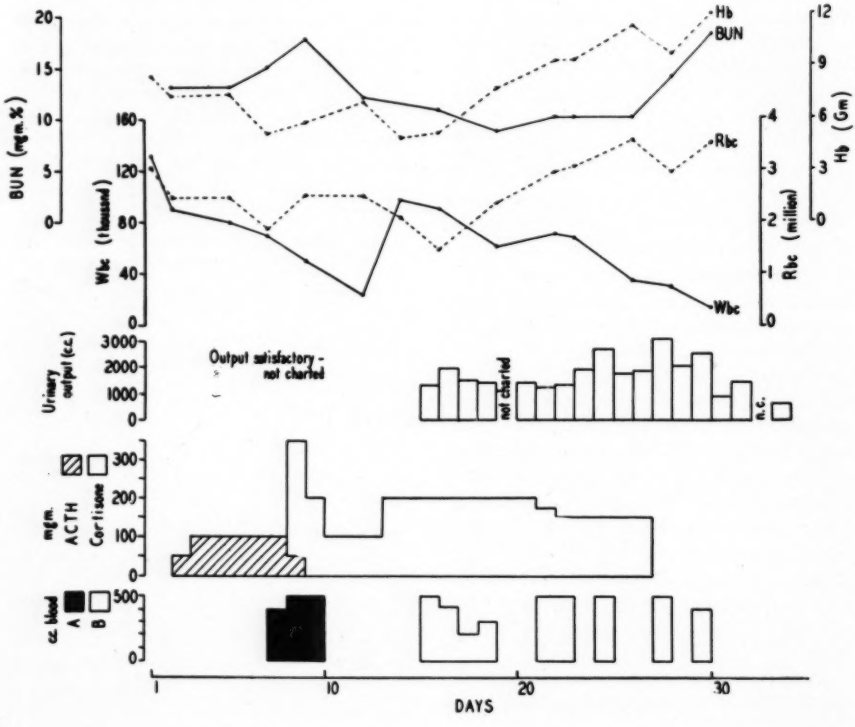
Autopsy confirmed the previously established diagnosis of acute granulocytic leukemia. There was no microscopic evidence of renal damage other than granulocytic infiltration. Particular attention was paid to ruling out the presence of lower nephron nephrosis.

SUMMARY AND CONCLUSIONS

This patient showed no untoward effects after receiving 1400 cc. of incompatible blood. He was receiving ACTH and cortisone at the time.

Apparently there have been rare instances in which transfusions of incompatible blood have resulted in no detectable reaction.[3]

While Davidsohn[4] has reported low iso-agglutinin titers in patients with chronic leu-



kemia, he found normal or slightly elevated titers in the acute disease.

Although the reason for the absence of a transfusion reaction in this patient is unknown, it is being reported because of the possibility that the administration of ACTH and cortisone was a factor.

REFERENCES

1. Dameshek, W.: Blood Club Third Annual Meeting; ACTH in Leukemia, Blood 5: 791, Aug. 1950. Gardner, F.: ibid. Dameshek, W., Rosenthal, M. C., and Schwartz, L. I.: The Treatment of Acquired Hemolytic Anemia with Adrenocorticotrophic Hormone (ACTH), New England J. Med. 244: 117, Jan. 25, 1951. Simpson, J. W., Akeroyd, J. H., Swift, F. L., and Geppert, L. J.: ACTH in the Treatment of Erythroblastosis, U. S. Armed Forces Med. J. 2: 207, Feb., 1951. Unger, L. J.: The Effect of ACTH in Acquired Hemolytic Anemia, Am. J. Clin. Path. 21: 456, May, 1951.
2. Muirhead, E. E.: Incompatible Blood Transfusions with Emphasis on Acute Renal Failure, SG&O. 92: 734, June, 1951.
3. Weiner, A. S.: Blood Groups and Transfusions, 3rd ed., Springfield, Ill., Charles C. Thomas, 1943, p. 115. Drummond, R.: Symptomless Incompatible Transfusion, Brit. M. J. 1: 483, 1944.
4. Davidsohn, I.: Isoagglutinin Titers in Serum Disease, in Leukemias, in Infectious Mononucleosis and in Blood Transfusions, Am. J. Clin. Path. 8: 179, 1938.

SLUDGED BLOOD IN POLIOMYELITIS

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Intravascular agglutination of erythrocytes, sludged blood,[1] has been described by Knisely and Bloch in numerous publications. This pathologic physiology of circulating red blood cells has been described by the authors in a large number of diseases in humans and in animals. This tendency for the red blood cells to clump together has not been seen in normal individuals. Sludging has also been described in anterior poliomyelitis.[2]

According to Knisely, the major known mechanisms in which sludged blood damages the body are as follows:

(a) Sludged blood reduces the rates of flow through all blood vessels. This forcibly reduces the rates at which the oxygen and glucose of the blood can be carried to the endothelium of the walls of the blood vessels which results in anoxia or hypoxia of the stagnant type. Anoxic endothelium always permits blood fluid to pass out through the walls of the small vessels. This acts toward causing hemoconcentration, edema, and reduction of the circulating blood volume.

(b) Agglutinated red cells are ingested and destroyed in the phagocytic cells of the liver, spleen and bone marrow. This results in anemia and in a decreased circulating blood volume. These phagocytes ingest protein-coated red cell masses. This factor may initiate and maintain protein deficiencies in human patients.

(c) The sedimented agglutinated red blood cells may cement on the vessel walls into a large mass, which forms a thrombus.

(d) These masses may cause minute embolizations and/or multiple minute thromboses.

(e) The above conditions may initiate intermittent, controlled shutting off of the arterioles, capillaries and venules in a selected series of tissues and organs.

In connection with blood sludging in poliomyelitis, it is of interest to quote Stewart[3] (1904) who refers to Batten[4] and Taylor[5] regarding the "morbid anatomy" of infantile paralysis:

"With regard to the morbid anatomy of the disease, the lesion in the first stage is characterized by engorgement and thrombosis of small vessels, with perivascular exudation, minute blood-extravasations, and small cell infiltration of the surrounding tissues. In the second stage there is necrosis of the tissues from which the blood has been cut off, and in the third stage absorption of the necrosed products, with contraction and cicatrization. Two views have been held to explain the pathology of these appearances. According to some observers the condition is due to a specific infection producing an acute inflammation, whilst others maintain that it is a vascular thrombosis due to some altered blood condition, not dependent on one specific infection, but due to various causes.

"There can be no doubt that the necrosed areas correspond accurately to the distribution of single vessels. In the cord, this area corresponds exactly with that of the anterior median artery. The great frequency of anterior poliomyelitis in the lumbo-sacral region seems to favor the view that the condition is primarily vascular, for the anterior cornua in that region are situated at a point most peripheral from the blood supply, i.e., the blood from the vertebral artery has to traverse the whole length of the anterior spinal artery, there being but little collateral anastomosis in that part of the cord.

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"In favor of the infective theory is the well-known occurrence of epidemics of the disease (e.g. Woods' 25 cases, [3,6] Painter's 38 cases, [4,7] and Mackenzie's 10 cases, [5,8] at certain times of the year, and sometimes in several members of the same family. This, however, is not necessarily antagonistic to the thrombotic theory; the infection only supplies the cause of the blood-change."

REFERENCES

1. Knisely, M. H.: An Annotated Bibliography on Sludged Blood. Postgrad. Med. 10: 15-24, 80-93, July 1951.
2. Knisely, M. H., and Bloch, E. H.: Intramuscular Agglutination of Erythrocytes in Disease, with Cinema Demonstration. Proc. Inst. of Med. of Chicago, 15: March 15, 1945.
3. Stewart, Purves. M. A.: Infantile Paralysis. Internat. Med. Ann.: p. 553, 1904, New York: E. B. Treat & Co.
4. Batten, Lancet: Dec. 20, 1902.
5. Taylor: Jour. Nerv. and Ment. Dis.: p. 449, 1902.
6. Wood: Occ. Med. Times: March 1903.
7. Painter: Boston Med. and Surg. Jour.: Dec. 11, 1902.
8. Mackenzie: Med. Rec.: Oct. 4, 1902.

OXYGEN THERAPY
A Brief Review

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It is a matter of record that Joseph Priestly discovered oxygen in 1774, but it was Lavoisier, three years later, who demonstrated that the gas was absorbed by the lungs, burned by the tissues, and eliminated as carbon dioxide and water.

It has since been shown that oxygen is the most widely distributed of all chemical elements, and the most important. Metabolism, which is life itself, is entirely dependent upon an adequate supply of oxygen to fan its fires. Oxygen, then, is literally the breath of life.

In 1798 Thomas Beddoes established his Pneumatic Institute in England in which he attempted to use oxygen as a cure-all. As a result of its misuse its actual therapeutic value suffered unmerited neglect for the next hundred years.

The modern concept of the therapeutic value of oxygen arose during the first World War, when, in 1917, Meltzer and Haldane demonstrated its great value in the treatment of pneumonia and pulmonary burns resulting from chlorine and phosgene. In 1922 Barcroft constructed at Cambridge University the first oxygen chamber, in which it was possible to control the percentage of oxygen. Similar chambers were later constructed at the Rockefeller Hospital by Stadie and Massachusetts General Hospital by Barach, and led to further important discoveries on the respiratory function of the blood. In 1925 Hill developed an oxygen tent so that the patient could be surrounded by a high concentration of oxygen no matter where he was located.

The main indications for oxygen therapy is anoxia, oxygen lack; (hypoxia, if you wish) anywhere, generalized or local. Local tissue anoxia such as from thrombus, particularly coronary and cerebral, may be greatly benefited by oxygen therapy. However, our more common and serious concern is with the various forms of generalized anoxia of which there are four main classifications:

1. *anoxic anoxia* — due to insufficient pulmonary oxygenation of the blood from such causes as decreased volume capacity of the lungs, reduction of the partial pressure of oxygen in the inspired air, emphysema, pulmonary edema, trachio-bronchial obstruction, et cetera.

2. *anemic anoxia* — due to a reduction in the amount of oxygen that can be furnished to the tissue by the blood as a result of decreased hemoglobin content such as in anemia, or in carbon monoxide poisoning where the ample hemoglobin is taken up by the carbon monoxide which has several hundred times the affinity for hemoglobin as does oxygen, and thus prevents the formation of oxyhemoglobin.

3. *histotoxic anoxia* — due to an interference with the ability of the tissue cells to utilize oxygen such as in cyanide, alcoholic, or other cell poisons.

4. *stagnant anoxia*—due to circulatory failure such as follows myocardial failure or shock.

The utilization of oxygen takes place in the various cells of the body to which it is transported by the blood. Now, how does the blood pick up, carry, and unload this oxygen? One of the laws of gases states that the amount of free gas in a solution will vary according to its partial pressure. It is the partial pressure that is the driving force of the oxygen into the plasma, from plasma to red cells and then from red cell to the plasma to the tissue cells. The oxy-hemoglobin is the store house; it is the plasma that actually retails the oxygen to the tissues.

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The following chart (1) gives the oxygen content of 100cc of air, alveolar air, arterial blood and venous blood, and shows the oxygen tension in mm. of Hg. It is readily seen that the oxygen is driven from its partial pressure high of 159mm. Hg. in the air towards its low pressure of 35 mm. Hg. in the tissue cells. Approximately, 300cc of oxygen are required per minute in normal body metabolism, and

CHART 2

Effect of breathing 100% oxygen on arterial and venous oxygen content, tension, and degree of saturation.

Arterial blood	Venous blood
20-20.5 cc/100	15-18 cc
.3 cc-3.3 sol.	
03. cc equals 14% increase	20% increase
90 mm.-100 mm.	40 mm.-60 mm.
95 sat.-100 sat.	75 sat.-90 sat.

CHART 1

Air	Alveolar Air	Arterial Blood	Venous Blood	Tissue
Oxygen				
21.cc/100	14.cc/100	20.cc/100	15.cc/100	
		.3 cc in sol.	.15 cc in sol.	
159 mm. Hg.	100 mg. Hg. tension	90 mm. Hg.	40 mm. Hg.	35 mm. Hg.
		95% sat.	75% sat.	
Carbon Dioxide				
.03cc/100				
23 mm. Hg.	40 mm.	40 mm.	46 mm.	52 mm.

200cc of carbon dioxide are eliminated. The pressure gradient of carbon dioxide is in reverse from that of oxygen. The high pressure of the carbon dioxide is in the tissue cells and the low is in the inspired air so that carbon dioxide is eliminated with each expiration.

The next chart (2) shows the effect, in a normal subject, of breathing pure oxygen instead of air. It is seen that the arterial blood oxygen is only increased about 3 cc per 100 cc of blood, but that this results in a 50 per cent increase in the oxygen tension available to the tissues (venous blood) in that the tension is increased from 40 mm. Hg. to 60 mm. Hg.

In conditions where severe anoxia exists, marked increases in the arterial oxygen saturation may result from 40 to 50 per cent oxygen inhalation. In pulmonary edema, for example, where the oxygen content may be only 8 cc per 100 cc representing 40 per cent saturation, the oxygen content may be increased to 22 cc per 100 cc or with close to 100 per cent saturation. This would increase the oxygen available to the tissues by about 150 per cent.

Carbon dioxide and oxygen tension gradients from inspired air to tissues; also, oxygen content and percentage saturation breathing air.

The symptoms of anoxia depend upon whether it is of acute or insidious occurrence, and of a mild or severe degree.

Acute

a. slight—hyperonea, increase in pulse rate

b. moderate — headache, nausea, fatigue, tremors, loss of mental capacity, deplopia, et cetera.

c. severe — delirium, fever, coma, convulsions, and death in a matter of minutes.

Insidious—

Resembles alcoholic intoxication; exhilaration, due to cerebral stimulation; impaired mental function; emotional disturbances; restlessness; amnesia; ataxia; muscular weakness; ascending muscular paralysis; loss of special senses, (hearing last to go); coma; death.

The capacity of the cell to carry on its functional activity is decreased because oxygen lack interferes with the intracellular oxidation upon which the functional activity of the cell depends.

As Haldane stated, "anoxia not only stops the machine but wrecks the machinery." Severe acute anoxia in addition to the symptoms produced above, causes definite tissue damage. The central nervous system is most vulnerable and changes are found here first. Ganglion cells show all stages of damage from minor chromatolysis to swelling, shrinking,

disorganization of cytoplasm, distortion and nuclear rupture. Hyperemia, subpial and perivascular hemorrhages are common. Severe capillary congestion is found in the cerebral, pulmonary, renal and intestinal tissues. Degenerative changes are found in the liver, heart and kidneys, regarded as early signs of necrosis.

The extent and duration of the anoxia are the determining factors in the clinical symptoms and pathological damage. Recovery may occur, certain damage may be permanent or death ensue.

Cyanosis has not been mentioned as a symptom of anoxia, for it may be a very misleading objective finding. It is merely a blue color imparted to the skin or mucous membranes when at least 5 grams of reduced hemoglobin per 100 cc. of blood are present and may be altered or masked by thick or highly pigmented skin, jaundice; and accentuated by cutaneous capillary dilation. Cyanosis *may be* present with ample systemic oxygenation due to:

a. local chilling causing decreased blood flow to a part

b. polycythemia where there may be 5 grams of Hb. per 100 cc. of blood in excess of that required for normal oxygenation of tissues.

Cyanosis *may not* be present when there is severe anoxia:

a. anemia—if there were a total of less than 5 grams of Hb. per 100 cc. of blood it would be impossible for cyanosis to appear.

b. carbon monoxide poisoning — carboxy Hb. is red, thus no cyanosis.

c. histotoxic anoxias — blood well oxygenated but tissue cell cannot use it.

d. shock—due to decrease in peripheral Hb. (vasoconstriction with decreased peripheral circulation.)

Cyanosis *may* indicate severe anoxia:

a. conditions causing anoxic or stagnant anoxia. However, even here it is unreliable as an index, for of 127 observers, 75% were unable to discern cyanosis until the arterial oxygen saturation had dropped to 80 per cent, and 25 per cent of them could not see it until it had dropped to 71 per cent, which is less than the normal venous blood saturation, and was produced by the inhalation of an atmosphere containing only 10 per cent oxygen.

Let us consider a few conditions in which the indications for oxygen are fairly constant and in which, if applied early, give spectacular results:

1. pneumonia:
   a. Fast, shallow breathing, thready pulse, irrationality indicate severe anoxemia.
   b. Don't wait for cyanosis to appear.
   c. Don't reserve oxygen for the moribund patient; it will not raise the dead.

Several large series of cases by Barach and others show the death rate to rise in direct proportion to the delay in instituting oxygen therapy. In one series, 16 per cent died between the time oxygen was called for and could be brought to the patient, and an additional 10 per cent died within 24 hours after starting the oxygen. In 77 cases who received oxygen within 24 hours of diagnosis there were only three deaths.

In pneumonia the alveoli are filled with exudate and a portion or portions of the lung converted to a solid, airless mass. Diffusion of oxygen is diminished, vital capacity lowered. In addition, fever and toxemia increase the metabolic rate, thus increasing the tissue demand for oxygen. Consequently, an increasing demand for oxygen with a diminishing supply soon establishes a vicious cycle.

Factors which defeat oxygen therapy are massive consolidation, rapid circulatory failure, and toxic depression of the respiratory center.

Oxygen helps by raising capillary oxygen tension, slowing the pulse, reducing cardiac work, reducing respiratory rate and effort, and conserving the functional capacity of the myocardium.

2. *cardiac disease*:

Impaired cardiac function ultimately results in circulatory failure and pulmonary edema followed rapidly by lowered arterial and venous oxygen content, and on the vicious circle goes.

Oxygen is of help in congestive failure due to primary cardiac disease; cardiac insufficiency, secondary to chronic pulmonary disease; acute coronary thrombosis, and coronary arteriosclerosis with chronic cardiac pain.

It is interesting to note that the myocar-

dium requires, during exertion, as much oxygen as the entire body at rest. It functions abnormally with one-fifth the oxygen debt at which skeletal muscle remains unimpairerd.

During muscle contraction glycogen is broken down into lactic acid and oxygen must be available to oxidize a portion of this lactic acid and convert the remainder back to glycogen. Myocardianoxia results in a rapid depletion of available glycogen leading to embarrassed myocardial contractility.

3. *asthma*:

Asthma produces a decreased oxygenation due to a decreased vital capacity and thus less surface for diffusion of gases. There is increased residual air and thoracic negative pressure.

Oxygen alone is not satisfactory in the treatment of asthma.

Helium-oxygen, 80/20 is good, especially if given with positive pressure of one to three cm. of water. The density of helium being so much less than that of oxygen or nitrogen, (79 per cent of air) that an 80/20 helium mixture requires one-third the force or effort for its movement through the constricted bronchioles of the asthmatic.

4. Other conditions benefited by oxygen therapy:

a. shock or impending shock; severe operations; hemorrhage
b. pulmonary embolism
c. chronic ulcers due to circulatory stasis at site of lesion
d. cerebral embolism; mesenteric embolis
e. anaerobic infections
f. severe toxemia, such as acute thyroids, where the metabolic rate is considerably increased.
g. intra-uterine foetal distress; asphyxia neonatorum.
h. morphine, barbiturate, and alcoholic poisonings.
i. gas poisoning such as carbon monoxide.
j. pulmonary exudation due to irritant gases, burns.
k. high altitude flying or climbing (the percentage of oxygen in the air at high altitudes is the same as at sea level, but the tension or pressure is much less.)
l. convulsions.
m. 100 per cent for removal of nitrogen
   1. abdominal distension, such as ileus
   2. prior to pressure dives, etc., to rid the body of nitrogen and prevent the "Bends."
   3. headaches following encephalography.
   4. pneumothorax.

It must be kept in mind that oxygen therapy is not a cure, it is but a therapeutic crutch to help support the patient while the physician gains time to locate and treat effectively the causative factors producing the anoxemia or anoxia.

METHODS OF OXYGEN THERAPY

The commercial type, large cylinder, containing 244 cubic feet of oxygen under 2,200 pounds pressure should be used. Smaller tanks are too costly for routine use. There are many ways and means of administering oxygen, but only three methods will be briefly mentioned here, as they are most commonly used and therefore better understood by the greater number of physicians and nurses having occasion to administer oxygen therapy.

1. Mask-Nasal and Oro-Nasal — Best for high concentrations and the only method by which near 100% oxygen may be given. Most suitable for providing high concentration for short periods up to a day or two. Requires constant supervision to be effective, may be irritating to patient and produce pressure sores.

2. Nasal Catheter — Best for general use, providing concentration up to 60%. It is safe, inexpensive, requires minimum of equipment and is easiest of all methods to administer. Does not require constant supervision. May be irritating to naso-pharyngeal mucosa after week or two. Must be removed every 12 hours, cleaned, lubricated, and reinserted in opposite nostril. Is only method other than oxygen room which need not be interrupted in providing patient nursing care, medication or food.

3. Oxygen Tent — Very good, but cost exceeds that of mask or catheter; oxygen concentration provided patient is less than mask and **may be** equal to catheter if properly set up and constantly supervised. Oxygen concentration is interrupted in providing nursing care and food. May be dangerous if oxygen supply or ice runs out unnoticed. Excellent in providing a temperature controlled atmosphere plus oxygen to the patient and thus best indicated in the heat of the summer or in the presence of high fever.

Administration

A. Mask Method:
   1. Equipment
      a. Tank of oxygen

b. Pressure reducing valve and flow regulator
c. Mask with bag and connecting hose

2. Procedure
a. Have orderly bring tank of oxygen, fasten it to head of bed with strap and attach regulator to tank.
b. Attach hose connections from mask to flow meter and turn on oxygen tank.
c. Turn on oxygen flow to about four liters per minute.
d. Place mask firmly on face making sure it fits smoothly with no leaks and hold in place with head strap.
e. Adjust oxygen flow to patient's respiratory volume — the bag should be not quite empty at the end of inspiration.

B. Catheter Method 4L/min-30%; 5L/min-40%; 8L/min-50%

1. Equipment
a. Tank of oxygen
b. Pressure reducing valve and flow regulator with humidifier
c. Nasal catheter, vaseline, adhesive tape and scissors

1. Procedure
a. Same as with mask
b. Fill humidifying jar to proper level and attach to flow-meter
c. Attach hose to outlet of humidifier and attach catheter to opposite end.
d. Measure approximate length of catheter to be inserted and mark with small piece of tape—from tragus of ear to lateral side of nostril.
e. Turn on oxygen flow to about 4 liters per minute and lubricate catheter the length of insertion with thin film of vaseline (not water-soluble).
f. Insert catheter into nostril towards floor of the mouth up to mark made in (d). Tip of catheter should be visible just behind uvula.
g. Run catheter up over tip of nose, across bridge onto forehead and tape in place across bridge of nose and on forehead, and adjust oxygen flow, 4,6,8 Liters/min for 30,40,50%.
h. Every 10-12 hours insert clean catheter into opposite nostril in same manner and remove old one, clean it and have it ready for next change.

C. Tent Method

1. Equipment
a. Oxygen tent
b. Pressure reducing valve and flow regulator
c. Oxygen tank
d. Ice — chopped pieces size of your fist, **not** crushed ice.
e. Extra rubber sheets to cover entire mattress beneath patient
f. Extra bath blankets.

2. Procedure
a. Have orderly bring above equipment (a) to (d)
b. Get room ready to receive tank and tent.
c. Prepare mattress with rubber sheet and patient with bath blankets.
d. Have orderly place tent in position, attach regulator to oxygen tank and tent and fill ice chamber of tent with ice.
e. Adjust tent canopy over patient, tucking it under mattress smoothly a distance of 10-12 inches on top and sides and adjust it snugly across patient's lower abdomen holding it in place with extra blanket.
f. Flood tent with oxygen for a minute by holding down flush valve.
g. Set flow of oxygen on flow meter usually 8 to 12 liters per minute.
h. Adjust temperature control to provide proper temperature usually 70°F or during very hot weather 10°-15° below room temperature.
i. Check tent constantly for oxygen flow and supply, ice content, temperature and leaks around canopy. Empty ice water P.R.N.
j. Permit no electric switches or buttons, matches, lights or lighted cigars, cigarettes or pipes within the tent, and no smoking in the room. Place signs so stating on door of room and in the room.
k. Modern refrigerated tents do not require the frequent addition of ice and removal of water.

General Remarks

Oxygen is not explosive and does not burn but it does support combustion so readily that a lighted cigarette, for example, will explode into flame in the presence of a high concentration of it. Under the heat of pressure it may cause readily combustible substances such as oils and greases to burn, thus no oils or greases are used on the connection of the oxygen tank to the regulator or near the regulator.

The oxygen within the tank is under a pressure of 2,200 pounds per square inch. Although the tanks are checked frequently, a flaw could develop. In the presence of such a defect should the tank be subjected to a severe blow such as being dropped it might blow apart. Handle with care! Make sure they are placed where they **won't be** and fastened so they **can't be** knocked over!

The tent canopy, nasal catheter, face mask and bag should be washed with green soap and lysol solution and thoroughly dried before being sent back for storage.

Before starting any of the above procedures explain to the rational patient what you are going to do and what they must do. A patient who understands what is to be done, and is assured it will not hurt and is for his benefit will cooperate readily.

Chart

1. Time administered, method used, oxygen flow in liters and temperature within tent if tent is used.

2. Patient's reaction, especially pulse and respiration frequently.

REFERENCES

1. Comroe, J. H., Dripps, R. D.: The Physiological Basis for Oxygen Therapy. Springfield: C. C. Thomas Co., 1950.
2. Barach, A. L.: Inhalational Therapy. Philadelphia: J. B. Lippincott & Co., 1944.

3. Andrews, A. H.: Manual of Oxygen Therapy Techniques. Chicago: Year Book Publishers, Inc., 1947.
4. Christensen, E. M., Urry, A. G., Cullen, S. C.: Alveolar and Arterial Oxygen Contents during Oropharyngeal Oxygen Therapy. Anes. 7: 399-404, July 1946.
5. Comroe, J. H., and Botelho, S.: The Unreliability of Cyanosis in the Recognition of Arterial Anoxemia. Am. J. Med. Sc., 214: 1-6, 1947.
6. Committee on Public Health Relations of the New York Academy of Medicine: Standards of Effective Administration of Inhalational Therapy, JAMA, 121-10, March, 1943.
7. Barach, A. L. and Eckman, Morris: A Mask Apparatus which Provides High Oxygen Concentration with Accurate Control of the Percentage of Oxygen in the Impaired Air and without Accumulation of Carbon Dioxide. Jour. Aviat. Med., March, 1941.
8. Barach, A. L.: The Use of Helium as a New Therapeutic Gas, Anes. & Anal., Sept. 1935.
9. Trovell, R. M., and Remlinger, J. E.: History and Present Status of Oxygen Therapy and Resuscitation, JAMA, 117-23, Dec. 1944.

CORTICOTROPIN AND CORTISONE THERAPY IN DERMATOLOGY

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In May, 1949, Kendall and his co-workers Hench, Slocum and Polley, presented to the Staff Meeting of the Mayo Clinic, their observations on the effects of a hormone of the adrenal cortex (17-hydroxy-11 dehydrocorticosterone), and of a pituitary adrenocorticotrophic hormone on Rheumatoid arthritis. The experimental cortisone had been supplied by Merck & Co., and the corticortropin (ACTH) by Armour & Company, where the Medical Director, John R. Mote, had perfected its isolation and purification from the pituitary glands of slaughtered animals. In two and one half years rapid progress has been made in the clinical evolution of these drugs. This is also true of their commercial production, so that both drugs are available in sufficient quantities and lowered price to the medical profession.

Cortisone is one of several allied steroids known to be secreted by the adrenal cortex. It was isolated by Kendall in 1936. Reichstein of Switzerland described it independently. Merck's research department synthesized the compound in 1946. Its chemical formula is 11-dehydro-17-hydroxycorticocosterone.

Corticotropin (ACTH) is a biological of undetermined chemical structure, currently extracted in commercial quantities from the pituitary gland of slaughtered animals.

Cortisone has several direct physiological actions upon the tissues of the human body. Corticotropin causes a primary stimulation and increased functional activity of the adrenal cortex, with increased production of cortisone.

Thus, both cortisone and corticotropin produce the same ultimate physiological responses, the former by substitution, the latter by stimulation of increased production. These main physiological responses are:

1. Regulation of distribution of sodium, potassium and chlorides.
2. Regulation of the water balance.
3. Regulation of the body chemistry of carbohydrates, proteins, and fats.
4. They are concerned in the formation of blood cells and lymphoid tissue.
5. They are involved in sexual anatomy and physiology.
6. They affect the cutaneous pigmentation.

RESPONSE TO CORTISONE IN VARIOUS SKIN DISEASES

Beneficial to Curative	Encouraging	Transient
Pemphigus	Dermatomyositis	Scleroderma (early)
Exfoliative Derm-	Sarcoidosis	Periarteritis Nodosa (early)
Allergies		Psoriasis
Contact Dermatitis		
Drug Sensitivities		
Serum Sickness		
Angio Neurotic edema		
Extensive Burns		
Dissem. L. E. (early)		
Erythema Multiforme		
Erythema Nodosum		

Undesirable side effects occur in a certain number of cases under therapy with these drugs. Most of them occur when heavy doses are administered, or over a long period of time. Fortunately, all of these are transient and reverse readily when the use of the drug is discontinued. Some of these side effects are:

1—Various mental changes—usually mild, transitory.
2—Disturbance of electrolyte balance—retention of sodium and water.
3—Hypertrichosis. Rounding of face (moon face).
4—Increase in blood pressure.
5—Interference with menstrual function.
6—Disturbance of carbohydrate metabolism.
7—Increased blood coagulability.
8—Increase in pigmentation of the skin.

It is uncommon for all of these to be observed in the same individual, but one or more may be when the dosage is heavy or treatment protracted.

While there may be no absolute contraindications to the use of these drugs, certain diseased states make their use unwise, except

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under great emergency and under most careful observation. Some of these relative contraindications are:

1—Active tuberculosis. Probably latent and suspected.
2—Myocordial failure or diminished cordiac reserve.
3—Hypertension of severe grade.
4—History of psychotic state.
5—Severe diabetes mellitus.
6—Severe pyogenic infections.
7—Market renal insufficiency.
8—Thrombotic phenomena — coronary infarction, cerebral thrombosis, pulmonary embolus, thrombophlebitis.
9—Peptic ulcer.

Cortisone is supplied in tablets of 25 mgm. for oral use, and in aqueous solution for intramuscular injection. The oral route appears to be as effective as the intramuscular and has the advantage of adaptability to ambulatory patients. There is no set dosage schedule. The nature and severity of the dermatosis are important factors in the initial dosage while later phases of dosage are governed by the response of the patient's disease. A recommended schedule for many dermatoses is one similar to that used in rheumatoid arthritis:
1st day 100 mgm. every 8 hours for 3 doses.
2nd day 100 mgm. every 12 hours for 2 doses.
3rd day 100 mgm. every 24 hours for 7 to 14 days.

Corticotropin (ACTH) is prepared as a sterile powder to be mixed with water for intramuscular injection. Recently, it has been incorporated in a Gel suspension (delayed absorption), making it possible to give a daily dose with one intramuscular injection. It has also been found that small amounts of corticotropin may be administered safely by the intravenous drip route.

In view of the fact that metabolic alterations are to be avoided if possible, the initial dosage level should be such as not to cause a metabolic shift in most individuals. Accordingly an initial dose of 10 mgm. of Corticotropin, four times daily for a few days, is desirable in most cases. Where higher dosage levels are needed to produce a clinical effect, it should be borne in mind that metabolic changes are apt to occur and generally the therapeutic management of such cases must be individualized.

REFERENCES

1. Hench, P. S., Slocum, C. H., Polley, H. F., and Kendall, E. C.: Effect of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) in Man., JAMA, 144: 1327, 1950.
2. Sprange, R. G., Power, M. H., and Kaufman, E. H.: Physiological Effects of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) in Man., JAMA, 144: 1341, 1950.
3. Symposium on Cortisone and ACTH in Clinical Medicine. Proceedings of the Staff Meetings of the Mayo Clinic, Volume 25, 17, August 16, 1950.

CORTISONE AND CORTICOTROPIN IN THE TREATMENT OF ACUTE INFLAMMATORY SKIN ERUPTIONS*

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and
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During the past year there have been articles discussing the treatment of pemphigus and disseminate lupus erythematosus with the corticosteroids. We have also been impressed with the value of these drugs in the treatment of severe acute inflammatory eruptions; for dermatologic experience demonstrates that when eruptions are allowed to become chronic eczematous lesions, the treatment is often time-consuming, difficult, and expensive.

The seven cases presented in the chart demonstrate the value of these drugs in the treatment of severe acute inflammatory skin disease.

DISCUSSION

All of these patients, except one, were hospitalized and followed to the conclusion of therapy. In our use of the steroids, no toxic effects were observed, as the drug in most cases was stopped within five days. The dosage schedule was routine and the intravenous ACTH was usually given over a six to eight hour period. We feel now that, with the advent of oral cortisone, and the short period of usage in these cases, most of them could have been treated at home quite safely.

It has been shown that these drugs do not diminish sensitivity to an allergen as shown by patch test in serial dilutions[1]; however, they do diminish the inflammatory reaction which characterizes the acute eruption. In so doing, they abort the eruption and prevent the subsequent development of secondary infection with sensitization to bacteria and their

*Read before Staff Meeting, Wilmington General Hospital, November 12, 1951.
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Sex	Age	Diagnosis	Duration of Disease	Initial Dose	Daily Dose	Response
F	32	Severe Contact Dermatitis (Poison Ivy)	2 wks.	Cortisone* 200 mgm.	100 mgm. for 5 days	Good
F	23	Eczema Herpeticum (Herpes Simplex infection of Atopic Eczema)	24 hrs.	ACTH 20 mgm. i. m. q.6 hrs.	Gradually reduced over 4 ds. to 10 mgm. q.6 h. and stopped	Excellent
M	31	Severe Contact Dermatitis (Creosote)	24 hrs.	Cortisone 200 mgm.	100 mgm. for 3 days	Good
F	40	Severe Generalized Contact Dermatitis (Poison Ivy)	48 hrs.	ACTH 15 mgm. I. V.	10 mgm. for 4 ds. I. V. and stopped	Excellent
F	56	Severe Contact Dermatitis (Poison Ivy)	48 hrs.	Cortisone 200 mgm.	100 mgm. daily for 3 days	Excellent
M	58	Acute Exfoliative Dermatitis (Hodgkin's Disease)	1 wk.	ACTH I. V. 20 mgm.	ACTH I. V. 10 mgm. daily for 9 days	Marked relief of itching and clearing of eruption
M	25	Urticaria (Unknown)	2 wks.	ACTH I. V. 20 mgm.	Gradually reduced over 4 ds. to 5 mgm. I. V. daily and stopped	Good

*Cortisone used was oral in all cases.

products. It is emphasized that these drugs are of no value where the etiologic agent is still persisting. In common dermatoses, such as hand eruptions due to soap and secondary infection, the corticosteroids seem to accelerate the severity of the eruption, perhaps because of their adverse effect on a bacterial infection.

It is important to note that in the presence of infection an antibacterial agent should be given with the steroids. It is obvious that an accurate diagnosis must be made and routine bland dermatologic therapy applied to the lesions.

Finally, we do not suggest that steroids be used in every active inflammatory eruption of the skin; but in our opinion they are indicated in those eruptions in which the etiologic agent can probably be removed and the eruption is so severe that it will probably go into a chronic eczematous state unless aborted quickly.

SUMMARY

1. Corticosteroids were used successfully to abort seven cases of acute inflammatory skin eruptions.

2. No toxic effects were observed in the short space of time that these drugs were used.

3. It is felt that, with further experience, most of these cases could have been treated as out-patients.

4. It is stressed that the use of these drugs is indicated only where the etiologic agent of the eruption has probably been eliminated; or, as in the case of Hodgkin's disease, temporary symptomatic improvement is urgently needed.

REFERENCES

1. G. Douglas Baldridge and Albert M. Kligman: The Effect of Cortisone on Experimentally Induced Contact Dermatitis, J. Invest. Derm., 17: 257, 1951.

DERMATITIS RESULTING FROM TOPICAL DENTAL THERAPY*

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A plea is made to dentists to desist in the practice of employing energetic shotgun antibiotic and sulfonamide therapy topically and focally.

The majority of dentists routinely employ a variety of shotgun antibiotic and sulfonamide preparations topically following extractions and in the treatment of septic conditions of the mouth.

These preparations are detailed to them with ever glowing reports. Unfortunately they are not aware of the dire consequences.

*From the Department of Dermatology, Temple University School Medicine, Dr. Carroll S. Wright, Chief; Dr. Gross, Assistant Chief.

Local use of sulfonamides are tabu in the dermatologic field. Many antibiotics fall in this category. They have definitely been proven to be sensitizing agents. When they are employed locally they are capable not only of producing a dermatitis, but of sensitizing patients so that these therapeutically important preparations may prove dangerous when administered enterally and parenterally when a critical medical need arises.

The topical dental preparations that I refer to are available commercially in a variety of forms, from a sulfonamide paste to compound pastes, sprays and packs containing sulfonamides, penicillin, aureomycin, and other antibiotics.

In my private practice I have had occasion to treat 34 patients with a multiform type of eruption which originates primarily as a generalized pruritis followed by a multiplicity of lesions which simulate a contact dermatitis. The eruption usually begins on the palmar surfaces as a non-inflammatory vesicular eruption similating a dermatophytid.

Soon thereafter an erythemato-papulo-vesicular eruption presents itself on the upper extremities and face, with scattered lesions on the trunk, lower extremities and the plantar surfaces.

It is an explosive type of reaction simulating an "id" eruption rather than a dermatitis medicamentosa. The dermatitis is extremely pruritic and the patients that I have observed varied in their course from a mild to a severe bout which was directly proportional to the number of topical dental treatments with the offending agents.

The following is a typical case history:

B. S., white, female, age 23, wife of a physician, consulted her dentist for the treatment of an abscessed tooth. A preparation containing a sulfonamide, penicillin and aureomycin was applied topically. She returned to the dentist a week later and received a similar treatment.

That evening the patient had a generalized pruritis and she developed a linear vesicular eruption on both forearms, scattered papules on the face, and a non-inflammatory vesicular palmar eruption. Her husband phoned me and said: "My wife has oak poisoning, will you treat her?"

After examining the patient I suspected a contact dermatitis but could not elicit a clue. There was no history of drug ingestion. I asked her to retrace her steps twenty-four (24) hours prior to the eruption to its onset. During the course of questioning, she informed me she had consulted her dentist twice and that he had applied the aforementioned topical therapy. This was the solution to her dermatitis.

She was treated empirically and advised never to have a dentist employ topical sulfonamide and antibiotic preparations, cautioning her that future attacks would be of a greater severity and that these preparations may be contraindicated enterally and parenterally.

Another example:

A dentist telephoned me recently and asked me to suggest treatment for a patient that was sensitive to novocaine, stating that he extracted a tooth employing novocaine as a local anaesthetic in the morning. That evening the patient telephoned him stating that she was itching and "broke out in a rash."

On questioning the dentist he informed me that he sprayed the socket with a preparation containing penicillin and sulfonamides.

I told him that the latter was the offending agent. "Impossible," he stated, "I used such a small amount of the spray - - -". I cautioned him not to repeat the procedure on this patient again.

I caution all dentists to avoid topical shotgun sulfonamide antibiotic preparations. The sulfonamides are especially incriminating. From a dermatologic standpoint the preparations that have the lowest sensitizing index are aureomycin and terramycin.

My experience with terramycin locally has shown no cases of sensitivity and from my dermatologic experience I would subscribe to the use of this preparation as a topical dental agent when indicated.

MISCELLANEOUS

Medical Education Financing

Problems of medical education and licensure were discussed thoroughly at the 48th annual Congress on Medical Education and Licensure in Chicago February 10-12. The gathering drew nearly 500 medical educators, state board officials and members of advisory boards in medical specialties.

Speakers reported progress in the movement to raise private funds for medical education, and confidence was expressed that hard-pressed schools will not be subjected to possible federal control by accepting government aid to meet mounting instruction costs.

Dr. John W. Cline of San Francisco, president of the American Medical Association, announced a new plan which promises to be a substantial source of private funds for medical education. Dr. Cline also warned medical schools against becoming "perpetually dependent on Washington handouts."

He said that the A.M.A. Board of Trustees has approved in principle a plan whereby the association, as a corporation, would accept patents for medical discoveries made by member physicians. All royalties, he said, would be turned over to the American Medical Education Foundation for distribution to medical schools.

"The A.M.A. has appointed a committee to study the technicalities involved," he said. "Provided no legal barrier is encountered, the proposed plan shortly will become a reality."

Dr. Cline also said that in supporting one-time federal grants to medical schools for construction and renovation, the A.M.A. believes them to be reasonably free from the hazard of federal control.

An increase in medical school enrollment of students from small towns probably would result in a larger supply of doctors in such areas, according to Dr. H. G. Weiskotten of Skaneateles, N. Y., chairman of the A.M.A. Council on Medical Education and Hospitals. A recent study of the present location of physicians who graduated from medical schools in 1930, 1935 and 1940 showed that residence before admission to medical college is in general the most potent factor in determining the place of practice, Dr. Weiskotten said.

Contributions to the American Medical Education Foundation are gaining in momentum, it was reported by Dr. Donald G. Anderson of Chicago, secretary-treasurer of the foundation and secretary of the council. During 1951, contributions totaling $745,000 were received from 1,811 individual physicians, 33 organizations and 33 lay friends of the medical profession, Dr. Anderson said.

"It is hoped that by concentrating fund raising activities in the spring of this year, the foundation will have a substantial sum available to turn over to the National Fund for Medical Education for distribution to medical schools on or about July 1," he added.

Dr. Anderson also said that under a recently adopted policy, contributions by doctors who specify a particular medical school will be added to the school's full share from the unearmarked funds raised by the foundation and the national fund.

American College Of Allergists

The next annual meeting of The American College of Allergists will be held this year at the William Penn Hotel in Pittsburgh, Pennsylvania, on April 7-8-9. The College is offering an unusually practical program for its fellows, members and guests.

An innovation for meetings of allergists will be a session devoted to the problems of the allergic patient as met in modern industrial medicine. All reputable physicians are welcome to attend. For more particulars, write the College, LaSalle Medical Building, Minneapolis 2, Minnesota.

American Congress Of O & G

The American Congress on Obstetrics and Gynecology will meet in Cincinnati, Ohio on March 31-April 4, 1952. Registration is $5 for members of the American Committee on Maternal Welfare, $10 for non-members. Send advance registrations or inquiries for details to 116 S. Michigan Avenue, Chicago 3.

Traffic Safety

One of the sorriest symbols of our times is America's automobile accident record.

The summing up for 1950 has just reached us from The Travelers Insurance Companies who each year publish an almanac of crash data. Of all the facts about auto accidents in their booklet, the most significant, it seems to us is this:

Almost 500,000 casualties in 1950 were the direct result of speeding. One out of every three Americans who lost their lives in last year's wrecks met death because someone was driving too fast.

Speed has been causing a greater percentage of accidents year after year. In 1950, speed was a greater factor in traffic casualties than at any time in history.

Traffic laws and law enforcement are part of the answer. Engineering will help some. But with perfect roads and perfect police work, the man behind the wheel can continue to exceed the speed limit if he wants to or if he isn't thinking.

Keep this in mind when you drive. Stay within speed limits and you'll be doing your full part in a crusade to reduce automobile accidents by one third.

Experience can be dangerous—even deadly. This may surprise you, but statistics compiled by The Travelers Insurance Companies show that more than 98 percent of last year's fatal traffic accidents were caused by drivers with at least one year's experience.

Learning how to drive is relatively easy. The mechanics of driving become second nature soon after a student "solos." At this critical point, attitudes begin to take over. The super caution of the beginner is diluted by an ever-increasing confidence replaced by indifference, carelessness.

The skill of experience can sometimes get you out of trouble on the highway. But the chances are your over-confidence, your indifference got you into the trouble in the first place.

The moral is clear and urgent. Those of us who are experienced drivers must also be humble drivers.

In their 1951 booklet of street and highway accident data, The Travelers Insurance Companies record a total of 35,500 fatalities last year compared with 31,800 in 1949.

This discouraging picture reverses a post-war trend during which, although the numbers of registered motor vehicles increased steadily, the number of persons killed annually decreased.

In 1950, there were 3,700 more persons killed than in 1949 and there were 235,800 more persons injured last year than in 1949. Among that number of injured persons, no one knows how many more might have died were it not for expert medical attention given promptly. Nor does anyone know how many of those injured will spend the rest of their lives under physical handicaps which rival death itself as tragedies.

The Travelers report indicates that 1950's toll of killed is the highest since 1941's all-time record of 40,000. It is not a proud record.

We who drive—and walk—along the nation's highways and streets are responsible for the record. We *are* the record. We must accept this responsibility by driving and walking carefully.

"Social erosion in the emergency days ahead of us could assume the proportions of a landslide. We must be prepared for taut nerves and distraught lives. Above all else, no matter what happens, we must safeguard our youth—continue to train them in good citizenship; we must be eagle-eyed against circumstances defrauding them of that normal birthright of all Americans. To this end, I know of no better life-net than the Red Feather services." Stanley C. Allyn, president of the National Cash Register Company and president of Community Chests and Councils of America, Incorporated.

The National Automatic Merchandising Association, in an all-out public service program for united Red Feather campaigns throughout the country, distributed in 1950, a total of 40 million Red Feather match books, 12 million Red Feather paper beverage cups and 100 thousand Red Feather acetate tape messages through their local members. The project was done at no cost to the Community Chests.

+ Editorials +

DELAWARE STATE MEDICAL JOURNAL

Owned and published by the Medical Society of Delaware, a scientific society, non-profit corporation. Issued about the twentieth of each month under the supervision of the Committee on Publication.

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Articles are accepted for publication on condition that they are contributed solely to this JOURNAL. Manuscripts must be typewritten, double spaced, with wide margins, and the original copy submitted. Photographs and drawing for illustrations must be carefully marked and show clearly what is intended.

Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index Medicus, published by the American Medical Association, Chicago.

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Subscription price: $4.00 per annum, in advance. Single copies, 50 cents. Foreign countries: $5.00 per annum.

VOL. 24 FEBRUARY, 1952 NO. 2

THE A. M. E. F.

There are 79 four-year and 7 two-year medical schools in the United States, most of which have needed financial support very badly during the last several years. There is a probability that unless aid is given by the alumni of these schools there will be federal government aid and control. Two years ago most medical school Deans wanted money from anywhere. This year they can see the potential dangers of government aid and want no part of it. There have been many times in the past when each of us have wanted to do something to "save our freedom" and have said, "But what can I do?" This is a problem of the medical profession and must be solved by the medical profession. It is our opportunity to do something.

The American Medical Education Foundation is now completely organized with a national headquarters and state and county committees which will solve the problem. Prior to 1951 there were 86 alumni associations conducting campaigns to raise money. Through the A. M. E. F. there is one organized program which will accomplish much more than the sum of 86 units. The state societies of every state are pushing this program. The medical school alumni associations and the Deans are heartily supporting it and will soon announce this fact.

Our Alma Maters lost at least $1,000 a year on each of us, a total of $4,000. Many doctors feel that they should repay at least a part of this original investment. However, do not consider it a debt, but a responsibility to be met and an opportunity to aid your Alma Mater and prevent government control.

Every physician in the U. S. will be personally contacted and asked to give. Begin to consider how much you can give — not just this year but every year for three or more years. You will be asked to pledge!

Every cent donated will go to medical schools—every cent. The A. M. A. will, each year, pay all overhead expenses of the national headquarters. State societies are meeting the costs of any state expense. What you donate goes to medical school aid. This is probably the greatest single project ever sponsored by our Association.

But when you are asked to give be sure to give directly to the A. M. E. F., and, if you desire, specify which medical school you wish to receive the money. Within one month you will get verification from your Medical School Alumni Association. The advantage of this is that there are to be larger contributions from lay organizations, corporations and individ-

uals, and their gifts will be in proportion to what the doctors give. But the percentage giving is more important than the amount given. We must make it 100 per cent, even though the contribution is small. And remember, it's tax deductible.

The Delaware chairman, appointed by President Stambaugh, is Dr. C. L. Hudiburg, who will soon set up the state-wide machinery and get things going.

Additional information about the A. M. E. F. will be found in an editorial in the J. A. M. A. for February 2, 1952, page 375.

A. M. A. EXEMPT MEMBERS

Following our editorial and listing in the January issue on A. M. A. dues, we have received a reply from the A. M. A. Membership Division stating that "we have marked each doctor's record here exempt from payment of membership dues. In all instances when the *Journal A. M. A.* has been mailed it will be discontinued for these exempt members." That Journal can be subscribed for at the regular price of $15 per annum, but these exempt members will still receive the *Delaware State Medical Journal.* Those members who attain the age of 70 in 1952 will become A. M. A. exempt next January 1st, and if they also have been members of the Medical Society of Delaware for 30 years they will also become exempt from Delaware state and county dues, as honorary (H) members.

The list of Delaware members now exempt is:

NEW CASTLE COUNTY

Banton, Conwell, Wilmington
Chipman, I. Lewis, Sr., Wilmington (H)
Compton, Arthur G., Wilmington
Downes, John R., Newark (H)
Ellegood, Robert E., Wilmington (H)
Ellis, Walter W., Delaware City (H)
Forrest, George W. K., Wilmington (H)
Gruver, Arthur B., Wilmington
Kraemer, William H., Wilmington (H)
LaMotte, William O., Sr., Wilm. (H)
Lewis, Dorsey W., Middletown (H)
Pearson, G. Burton, Wilmington (H)
Rovitti, Peter A. M., Wilmington (H)
Samuel, Meredith I., Wilmington (H)
Springer, Harold L., Wilmington (H)
Vaughan, Edward M., Middletown (H)
Ericksen, George N., Wilmington
King, John F. W., Wilmington

KENT COUNTY

Marshall, William J., Milford (H)

SUSSEX COUNTY

Allen, Ira A. B., Seaford
Beebe, James, Sr., Lewes (H)
Hocker, Ulysses W., Lewes (H)
James, Oliver V., Milford (H)
Marine, David, Rehoboth
Riggin, Howard S., Seaford
Schwedenberg, Theodore, Seaford

GREETINGS

To the *Maryland State Medical Journal.* Vol. 1, No. 1, January, 1952 has reached our desk, and we welcome with open arms this newcomer in the ranks of the state medical journals, which conforms in contents and format with the other state journals and is a "beautiful job," with the highest standards exemplified. The editor is our old friend, Dr. George H. Yeager, of Baltimore, secretary of the Medical and Chirurgical Faculty of the State of Maryland, and to this new skipper and his associates the Delaware editor, now the senior in the field of state medical journalism, wishes long life and prosperity.

To the *Journal of the Student American Medical Association.* This is the official organ of the year-old SAMA, and is designed to provide information on the scientific and socio-economic sides of medicine, independent of partisan politics and organizational domination. Published at the AMA headquarters in Chicago (October through June), the price is $3.50 per year, but it is distributed *free* to American medical students and internes, some 33,000 of them. This may seem costly, but if it succeeds in educating medically and in indoctrinating, especially in good PR techniques, our doctors of tomorrow, we will say it is one of the smartest moves the AMA has made in many years.

BOOK REVIEWS

Introduction to Medical Science. By Julius Jensen, Ph.D. and Henry W. Noller, M. D. Cloth. Pp. 533. Price, $5.75. St. Louis: C. V. Mosby Company, 1951.

This book is intended to introduce student nurses to medical science. General review questions, projects and references are given at the end of each unit with the intention of helping the student master the material.

It may be useful as a general review text; it certainly is not organized for teaching purposes because it does not discuss in any systematic and complete way any of the branches of medicine as it would be taught by the nursing arts. This book will be of value to instructors in the biological sciences as a source of general information in health, disease, and public health.

Rehabilitation Nursing. By Alice B. Morrissey, B. S., R. N. Cloth. Pp. 299. Price, $5.00. New York: G. P. Putnam's Sons, 1951.

This book is very complete on the methods of handling disabled and incapacitated patients in the hospital and in the out-patient departments. It concentrates upon the nursing care of individuals with specific disabilities. Many illustrations, both photographic and diagramatic, enhance the explanations of the text.

This should be a very useful text in the physical therapy, rehabilitation and occupational therapy departments where the nurse receives her practical experience in handling incapacitated patients.

The general increase in disabilities resulting from war and civilian accidents, as well as from the incapacities of old age, has placed an increased responsibility in the nursing profession in the teaching of their students to care for the physical and mental restoration of the physically handicapped.

The poor quality of paper used to print this book detracts from its importance.

An Introduction to Materia Medica and Pharmacology. By Elsie E. Krug, R. N., M. A. and Hugh Alister McGuigan, Ph. D., M. D. Sixth edition. Cloth. Pp. 612, with 37 illustrations and 10 color plates. Price $4.25. St. Louis: C. V. Mosby Company, 1951.

This text book for nurses has been brought up to date in accordance with changes, terminology and dosage in the United States Pharmacopeia XIV and National Formulary IX. The material is very well organized, and each chapter ends with a number of review questions and a number of references to the literature. A glossary is alphabetically arranged at the end of the book.

The first section of the book covers the orientation of the study of pharmacology; this is followed by the physiological and therapeutic action of drugs, and finally the pharmacology as it is related to each of the body systems is discussed.

The text is written for the nurse in understandable and concise terminology.

Penicillin Decade. By Lawrence Weld Smith, M.D., and Ann Dolan Walker, R. N. Cloth. Pp. 122. Price, $2.50. Washington, D. C.: Arundel Press, Inc., 1951.

This is a review of the literature regarding the principal published data relating to any untoward effects of penicillin therapy over the first decade of its clinical use. Three hundred and forty-two references are given which have been published between 1941 and January 1951. Most of the reactions occurred with the older impure forms of the drug and with the topical forms. However, the suggestion made by the authors that "antibiotics are only of value for the treatment of infections due to organisms sensitive to the specific antibiotics being employed" cannot be overlooked. A careful inquiry into the history of allergy in the patient is a wise precaution before penicillin injections are given.

Except for its historical value in the field, this book is of no importance to the clinician.

The Changing Years. By Madeline Gray. Cloth. Pp. 224. Price, $2.75. Garden City, N. Y.: Doubleday and Company, Inc., 1951.

This book is intended for the woman faced with the problems and the superstitions of the menopause. The erroneous theories that menopause will bring cancer, insanity, or a decrease in sexuality are explained plainly and intelligently. Women will find this a very valuable book in understanding the physiology of their bodies concerned with menstruation, reproduc-

tion, emotions, menopause and sex. The various hormones of the female and male are discussed in simple language so that the usual fears which uninformed persons have regarding the female and male "changes" are successfully removed from their minds. Chapters are devoted to "How Your Doctor Can Help You", "What to Do About Your Sex Life", "What to Do About Your Figure" and "Love After Forty."

A bibliography of doctors, books, and articles used as references is also given.

This is certainly a very useful book, not only for persons approaching forty, but also for physicians who act as family advisers. It is written in an informal lively style, giving case histories and quoting medical sources for scientific statements. The author has made an important contribution to a very important and practical life problem.

Statistics for Medical Students and Investigators in the Clinical and Biological Sciences. By Frederick J. Moore, M. D., Frank B. Cramer, and Robert G. Knowles, all of the Department of Experimental Medicine, University of Southern California School of Medicine. Pp. viii + 113. Cloth. Price, $3.25. Philadelphia: The Blakiston Company, 1951.

This attractive book contains the essentials of those statistical methods most needed by clinical investigators, together with some useful numerical tables. The treatment of all subjects is more concise than that usually found in texts, but the style and format are unusually clear.

After a preliminary discussion of experimental variation and its possible causes, the authors discuss the mean, the standard deviation, and how these and other statistics may be used to characterize experimental data. Examples from clinical research are used to illustrate the methods. It is in this section that the authors introduce a new and simple graphical method for describing a body of data, which should be extremely helpful to the clinical investigator: this is the method of the "normal equivalent deviate." If the experimental observations are normally distributed and are plotted on a graph by this method, they will fall on a straight line, from which the mean and standard deviation may be determined by inspection. If the data are not normally distributed, the non-normality can be detected by the same graphical method; in this way the usual tedious computations of skewness and kurtosis may frequently be avoided. The "normal-equivalent-deviate" method has been derived from Finney's probit concept, now widely used by tenants of dosage-mortality relationships; it represents a valuable contribution to the methodology of clinical research.

The authors now introduce the three most commonly used small-sample technics for testing the significance of differences between experimental treatments, beginning with the variance ratio, F. They emphasize that the other sampling distributions (chi-square and "student's" t) are special cases of F. These tests of significance presuppose normally distributed data. The authors indicate that most "raw" data are not normally distributed, and suggest several ways for processing or "transforming" the data so that normality may be achieved. The "normal-equivalent-deviate" method described above may be employed for the preliminary diagnosis of non-normality, and the transformation of "raw" data to common logarithms is usually indicated. The logarithmic transformation is perhaps less often justified, however, than the enthusiasm of the authors would indicate. I feel that intimate familiarity with the gathering of data in field, clinic, and laboratory is probably the best guide to judgment.

The final section is concerned, almost too briefly, with the general aspects of the design of experiments and presentation of results. Here, as throughout the text, one is pleasantly surprised by the ability of the authors to express themselves clearly and concisely. One could wish for more illustrative examples in this section and throughout the book, but it appeared to be desirable to authors and publisher to retain brevity.

The book is lithoprinted on good paper, but the binding is flimsy and takes fingermarks, and the right-hand margins are not justified. These minor defects do not, however, detract from the generally good format and content. This work may be recommended as the most useful treatment of its kind that has appeared in recent years.

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[illegible]	0.2 mg.
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[illegible]	0.39 mg.
[illegible]	0.7 mg.
NIACIN	[illegible]
VITAMIN C	[illegible]
VITAMIN D	[illegible]
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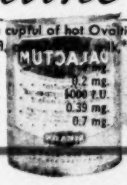
*Based on average reported values for milk.



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